

Book Review

Flora of Australia, volume 48, Ferns, Gymnosperms and Allied Groups. Editor P.M. McCarthy. Published by CSIRO, Melbourne, 1998; 788 pp.; hardback edition (ISBN 0 643 05971 7) \$AU 94.95; paperback edition (ISBN 0 643 05972 5) \$AU 59.95.

Released in November 1998, this volume marks the 20th in the proposed series of the 60-odd volumes of the *Flora of Australia*. At 788 pages, this is significantly the largest volume produced so far in the *Flora* series (vol. 49, Oceanic Islands part 1 was 681 pp.). Introductory essays and descriptions of 586 species are provided by a total of 21 contributors. The text is supported by 213 figures, comprising 176 line drawings and 2 colour paintings, by 17 illustrators, and 36 colour photographs by 7 photographers. A glossary of terms of particular relevance to pteridophytes and gymnosperms is included and augments the general glossary to the series that appeared in Volume 1.

Thirty-nine new taxa and combinations appear in the volume and numerous previously overlooked or resisted names are reinstated. No state will be immune from the need to make some modifications to their current censuses or floras.

This volume will be particularly welcomed by the many enthusiasts of the pteridophytes and gymnosperms as it treats all of Australia's non-flowering vascular plants in a single volume. Australia is not particularly well endowed with conifers, but most of our taxa are important for their considerable evolutionary and biogeographic significance, and our pteridophyte flora is by no means negligible, being in the order of 5% of the world's species.

The pteridophytes and gymnosperms have a particular interest too for their oft-claimed role as progenitors of the seed plants. Their ancestral position to the angiosperms is alluded to and their relationships within the major groupings are discussed as fully and plainly as contemporary knowledge permits in a series of excellent introductory essays to the groups. Evidence from the fossil record as well as interpretations from recent morphological, molecular and cladistic analyses are drawn on to support the classifications followed in the volume. However, due recognition is given to the dynamic nature of current phylogenies in the face of volumes of new data being gleaned from modern cladistic and molecular studies.

The 4 gymnosperm divisions (Cycadophyta, Pinophyta, Ginkgophyta and Gnetophyta) are treated at the same rank as the entire angiosperm group (Magnoliophyta). This treatment is based on a body of work which shows the 'gymnospermae' as traditionally understood as a paraphyletic assemblage. Monophyly is supported for each of the gymnosperm divisions and for the angiosperms. While phylogenists will probably be familiar with this grouping, many taxonomists who are less exposed to higher-order systematics will appreciate the overviews offered in this volume. The essays will also provide amusement to future phylogeneticists (who will undoubtedly adopt currently undreamt of schemes), as a snapshot to indicate our quaint, pre-2000 world-view of evolutionary systematics.

The descriptions and keys, as far as I could absorb them, appear to be pleasingly generous in their information content. What appears to be a more compact layout than earlier volumes of the *Flora* has allowed more detailed descriptions, and valuably, numerous notes contrasting often-confused species, discussion of aberrant forms, etc.

The line drawings are generally excellent. I regard them, in total, as the most appealing set produced in the *Flora* series to date. Many of the figures are quite dense, with comparative diagnostic components of commonly 6 or more taxa clearly depicted (e.g. G. Dashorst's almost baroque, but beautiful, work on figs 54 and 159). In my opinion, from both an aesthetic and information-value-for-dollar perspective, this is a significant and welcome departure in style from many of the rather spare figures of earlier volumes. The pictorial coverage is oddly patchy however, with e.g. *Zamiaceae* (40

Australian species) receiving no line drawings (but a few colour photographs) and only 3 species of Polypodiaceae (28 or 29 Australian spp.) given line drawings (but again, a few photographs). In contrast, we can delight in having a complete, or at least substantial, treatment of most other groups.

I like the placement of figures showing useful examples of frond shapes, degrees of division, sporangial arrangements and frond venation interspersed through the major key to pteridophytes.

I had to search hard to find flaws of any significance in this volume. The few I encountered are given here for the record.

The representation of named hybrids deviates from the traditional form (and recommendation H.3A.1 of the *Code*) in not placing the multiplication sign '×' hard against the epithet (e.g. *Christella* × *incesta*, p. 347; *Cyathea* × *marcescens*, p. 199; *Cyclosorus* × *intermedius*, p. 347; *Drynaria* × *dumicola*, p. 477)

Gleichenia rupestris is not regarded as occurring in Victoria but the species occurs in the far east of the state and was treated in Volume 2 of the *Flora of Victoria*, published in 1994.

The caption to figure 103 refers to *Pellaea falcata* var. *nana*, while this taxon is treated as *P. nana* in the text.

Figures 130, 131 and 132 are attributed to B. Parris. The first 2 bear T. Galloway's insignia, the third is unsigned but appears to have been executed by the same artist as the first two. I could find no other figures attributed to B. Parris in the volume although she is listed as an illustrator.

There is a trivial, but slightly distracting, inconsistency in style of the subheadings on pp. 531 and 532.

Botanists and enthusiasts will welcome the facility of being able to travel with a single volume to allow identification of these distinctive plants throughout Australia. The contributors and editors to this volume are to be warmly congratulated for the production of such a fine piece of work. It is hoped that the standard can be maintained for the run of volumes promised to be released in the near future.

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